

REMARKS

In this Amendment, Applicant has amended Claims 1 and 3, and added Claims 6 – 8 to specify different embodiments of the present invention and overcome the rejection. In addition, the specification has been amended in correspondence to the amendment of the claims. It is respectfully submitted that no new matter has been introduced by the amended claims and specification and added claims. All claims are now present for examination and favorable reconsideration is respectfully requested in view of the preceding amendments and the following comments.

REJECTIONS UNDER 35 U.S.C. § 102:

Claims 1 – 3 and 5 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Schumacher (DE 100 20 491.0, as translated in US Pub. 2002/0175022), hereinafter Schumacher.

Applicant traverses the rejection and respectfully submits that the presently claimed invention is not anticipated by the cited reference. More specifically, Claim 1 has been amended to add the feature that “a cross sectional area of gas flow of the throttling device reduces when energy or pressure of the gas flow increases.” In addition, Claims 6 – 7 have been added that specify that “the structure of the open and close member is characterized in that a cross sectional area of its first surface subjecting to gas pressure from the gas inlet is larger than a cross sectional area of its second surface that is opposite to the first surface and exposes to the gas outlet.” Furthermore, Claim 8 further specified the energy sensor member as a diaphragm, a piston or a bellows. These limitations are sufficiently supported by Fig. 1 and related descriptions in the specification.

It is respectfully submitted that Schumacher does not teach or suggest the features of the present invention as currently defined. The muffler according to the present invention achieves the damping or noise-reducing effect by a throttling device. Although

the traditional throttling device may have certain effects on gas flow noise, it does not have muffling or damping effects and cannot be used directly for muffling or damping of sound. This is because the extent of the gas flow noise is not only related to the amount of gas flow, but also related to the characteristics of the gas flow. In other words, under the same characteristics of the gas flow, the higher the amount of the gas flow, the higher the noise; and vice versa. Therefore, the traditional throttling device may only affect the gas flow noise to certain extent under specific conditions. Thus, it is not the muffler in a real sense. In addition, throttling effects to the gas flow only reduce the ratio as shown from the gas flow wave chart, and will not change the shape of the gas flow wave. Accordingly, the effect of reducing noise is not significant.

On the other hand, a throttling or current regulator is only used for reducing the gas flow, which is completely different from muffler. A muffler is a device that allows gas to pass it smoothly and, at the same time, reduces noise. A muffler achieves the reduction of the noise through changing the characteristics of the gas flow.

The muffler of the present invention achieves the effect of reducing gas flow by changing the gas flow characteristics through changing the gas flow instantaneously, without change to the average gas flow. More specifically, in the present invention, the peaks of the gas flow wave are selectively throttled, while the wave valleys of the gas flow are not. The throttled wave peaks are kept at the gas inlet and previous channels to elevate the wave valleys. After the process of reducing peaks and filling in valleys, the shape of the gas flow wave is completely change to basically straight. The effect of reducing noise is significant. The present invention solved the difficult problem of reducing noise in low frequency gas flow. These solutions and characteristics are not taught or suggested in Schumacher or other prior art.

Schumacher teaches a throttling device that regulates energy of its gas flow. When gas flow (pressure) increases, the flow area also increases. However, according to the technical solution in the present invention, when the gas flow (energy, pressure) increases, the gas flow area decreases.

Furthermore, as a specific embodiment of the present invention, the throttling device comprises an open and close member and a fixture; and the structure of the open and close member is characterized in that a cross sectional area of its first surface subjecting to gas pressure from the gas inlet is larger than a cross sectional area of its second surface that is opposite to the first surface and exposes to the gas outlet. This structure is not taught or disclosed in Schumacher or other prior art.

Therefore, the newly presented claims are not anticipated by Schumacher. and the rejection under 35 U.S.C. § 102(b) has been overcome. Accordingly, withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

REJECTIONS UNDER 35 U.S.C. § 103:

Claim 4 has been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Schumacher in view of Murray (US Pat. No. 3,219,144).

Applicant traverses the rejection and respectfully submits that the embodiments of present-claimed invention are not obvious over Schumacher in view of Murray. The significant differences between the present invention and Schumacher have been discussed as above. In addition, Murray has not disclosed the newly added features as discussed above. Due to above indicated differences, there is no motivation or reasonable expectation of success to combine Schumacher with Murray. Therefore, Even if they are combined, a person of ordinary skill in the art will not discern the present invention at time of its invention.

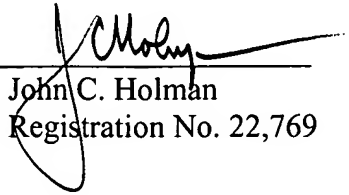
Therefore, the newly presented claims are not obvious over Schumacher in view of Murray. The rejection under 35 U.S.C. § 103 has been overcome. Accordingly, withdrawal of the rejections under 35 U.S.C. § 103 is respectfully requested.

Having overcome all outstanding grounds of rejection, the application is now in condition for allowance, and prompt action toward that end is respectfully solicited.

Respectfully submitted,

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